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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/909,488	07/20/2001	Harapanahalli S. Muralidhara	33449.8029.US00	2586
34055	7590	02/12/2007		
PERKINS COIE LLP POST OFFICE BOX 1208 SEATTLE, WA 98111-1208			EXAMINER FORTUNA, ANA M	
			ART UNIT 1723	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE 3 MONTHS		MAIL DATE 02/12/2007	DELIVERY MODE PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

09/909,488

Applicant(s)

MURALIDHARA ET AL.

Examiner

Ana M. Fortuna

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 31-35 and 37-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 31-35 and 37-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 12/4/06.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. Applicant's arguments, see paper of 5/15/06, page 5, last paragraph bridging page 6, filed as response to the final Office action dated 8/15/05, with respect to claims 31 have been fully considered and are persuasive. The final Office action of 8/15/05 has been withdrawn because although the degree of hardness in the potable water is open to levels that can be present in the water source treated by Nytia et al, e.g. surface water, that source of water does not meet the standard for drinking water with respect to other water contaminants levels required by the term "potable water".

#### ***Claim Rejections - 35 USC § 112***

2. Claims 31-35, 37-39 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for "potable water source", such as ground water, municipal water, or residential well water", does not reasonably provide enablement for (or bases for) the source of potable water with a range of hardness concentration of " at least 2 grains of hardness per gallons". The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. Neither the lower nor the open upper range is discussed in the specification. The range is open to hardness degree that covers very hard water, which covers ranges from 80-180 grains per gallons; and ranges, e.g. between 2 to 3.5 grains per gallons, that includes soft water.

3. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent

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protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 1-35, and 37-39 recites the broad recitation "input water with at least 2 grains of hardness per gallons", and the claim also recites "input flow of potable water" (as source of potable water) which is the narrower statement of the range/limitation. The degree of harness claimed includes levels of hardness that do not correspond with the degree of harness of "potable water" (or soft water that should include levels between 1 and 3.5 grains per gallons).

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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5. Claims 31-38 are rejected under 35 U.S.C. 102(e) as being anticipated by Husain et al (US 6,702,944). Husain teaches treating potable water, e.g water from a pressurized municipal water system to remove hardness by a t least one nanofiltration membrane (abstract, column 1, first paragraph, column 2, line 25-39, column 3 lines 56 through column 4, line 34; column 12, lines 40-68, column 13, last paragraph, through column 14, lines 1-28). The process of patent '944 rejects at least 80 percent of calcium ions, e.g based on total hardness measures as  $\text{CaCO}_3$  (column 3, last paragraph bridging column 4, first paragraph, column 18, 51-59, column 13, last paragraph, lines 55-65). The percentage of water recovery, as claimed in claims 31 and 37 is also disclosed by '944 (column 18, lines 51-60).

As to claims 32-33, the claimed properties are inherent of nanofiltration membranes (column 3, last full paragraph).

The pressure of claims 34-35 is disclosed in column 13, lines 68, through column 14, lines 1-3.

As to claim 39, the system of '944, provided with nanofiltration membranes, e .g. Desal DL1812 can produce 20 GFD at 99 psi, which is higher than the equivalent of 8GFD in these claims.

The final product in patent '944 produces softened water, which by general definition includes a hardness level of 1-3.5 grains per gallons of hardness. The process also includes pretreatment before membrane filtration (column 12, lines 40-59), and control valves to regulate retentate flow discharge to achieve a particular recovery ratio (column 14, through column 15 first paragraph) .

***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Article "clean water for Washington" (CEPublications web) defines the degree of hardness for soft, hard, and very hard water in grains per gallons. The USGS report includes answers to questions such as safe water, e.g. drinking water and their sources.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ana M. Fortuna whose telephone number is (571) 272-1141. The examiner can normally be reached on 9:30-6:00 M-F.

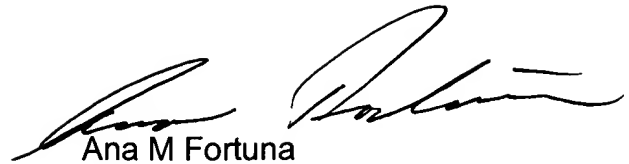
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on (571) 272-1151. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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A handwritten signature in black ink, appearing to read 'Ana M Fortuna', written in a cursive style.

Ana M Fortuna  
Primary Examiner  
Art Unit 1723

AF  
February 07, 2007.